

appeal.

The claims in the application are claims 1 to 14, no other claims having been presented.

Applicants' attorney wishes to thank the Examiner in charge of the application for the courtesies extended to him at the interview on November 8, 2001 at which time, the final rejection was discussed.

Claim 1 has been amended to correct the term "residue" and has been further amended to more clearly point out that the crystals reside in the residue throughout the process. Therefore, entry of the amendment is believed proper under the provisions of Rule 116.

All of the claims stand rejected under 35 USC 103 as being obvious over the Jaeger et al patent taken in view of the Sarnecki patent and optionally with the Rose et al patent for reasons of record.

Applicants respectfully traverse this ground of rejection since the Jaeger et al patent is an example of the prior art that Applicants wish to avoid. The main feature of Applicants' invention is the direct isolation of  $\beta$ -carotene type material from a microbial biomass wherein the direct isolation is effected by obtaining the  $\beta$ -carotene crystals from a fermentation process


without any solvent extraction. Applicants' process uses a washing step to remove lipids from the biomass and then the resulting carotenoid crystals are suspended in water to float the crystals thereon and to remove the biomass debris after which, the crystals are recovered.

In contrast thereto, Jaeger et al describes a process wherein the  $\beta$ -carotene producing cells are extracted with a solvent followed by crystallization of  $\beta$ -carotene. As pointed out to the Examiner at the interview, there is a distinct difference between washing and extracting. During a washing step, a solid material is treated with a solvent to remove impurities from the surface of the solid and extraction is a treatment of a solid product with an extraction solvent to dissolve the compound therein after which, there is a crystallization effected by various techniques such as solvent evaporation or cooling but as can be seen from pages 1 and 2 of the application as filed, the use of solvent extraction is what Applicants wish to avoid. In contrast thereto, Applicants merely wash the crystals to remove any lipid on the crystals thereof while leaving the  $\beta$ -carotene in crystalline form. The resulting washed crystals are then suspended in water to float the crystals thereon and to remove biomass debris after which, the crystals are recovered. There is absolutely no extraction step whatsoever in Applicants' process and the Jaeger et al patent cited by the Examiner is what Applicants' wish to avoid. Therefore, withdrawal of this ground of rejection is requested.

In view of the proposed amendments to the claims and the above remarks, it is believed that the claims clearly point out Applicants' patentable contribution and favorable reconsideration of the application is requested.

Respectfully submitted,  
Bierman, Muserlian and Lucas

By:


  
Charles A. Muserlian #19,683  
Attorney for Applicants  
Tel.# (212) 661-8000

CAM:ds  
Encl.: Marked up copy of claim 1

CERTIFICATION OF FACSIMILE TRANSMISSION

I hereby certify that this paper is being facsimile transmitted to the Patent and Trademark Office on the date shown below.

Charles A. Muserlian



November 12, 2001